

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-5 (Canceled).

Claim 6 (Currently amended): A magnetic field sensor characterized by comprising:

a magnetic field Hall element which outputs a signal in accordance with an applied magnetic field strength;

an amplifier which amplifies the output signal of this magnetic field Hall element and outputs a voltage signal across a pair of output terminals;

a condenser of which both ends are connected to the pair of the output terminals of said amplifier;

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a switch part which is inserted and makes a connection between one of said output terminals in the pair and one terminal of said condenser and which is closed by a first period of a signal given from an the outside of said switch part and is opened by a second period of a signal given from the outside of said switch part; and

a pair of an output terminals which outputs the voltages of both ends of said switch, respectively,

wherein the polarities of the voltage signals for the pair of the output terminals of said amplifier at during the first period of said first signal and at during the second period of

said second signal are mutually opposite polarities.

Claims 7-10 (Canceled).

Claim 11 (New): A magnetic field sensor according to Claim 6, characterized in that the magnetic field element is a Hall element.

Claim 12 (New): A magnetic field sensor characterized by comprising:

a magnetic field element which outputs a signal in accordance with an applied magnetic field strength;

an amplifier which amplifies a signal from this magnetic field element, which polarities in a first signal period and in a second signal period are mutually opposite, and outputs a voltage signal across a pair of output terminals;

a condenser of which both ends are connected to the pair of the output terminals of said amplifier;

a switch part which is inserted and makes a connection between one of said output terminals in the pair and one terminal of said condenser, and which is closed at the first signal period and is opened at the second signal period; and

a pair of output terminals which outputs the voltages of both ends of said switch, respectively.

Claim 13 (New): A magnetic field sensor according to Claim 12, characterized in that the magnetic field element is a Hall element.

Claim 14 (New): A magnetic field sensor according to Claim 12, characterized by further comprising a switch circuit which switches the voltage outputted from said magnetic field element to have opposite polarities in a first signal period and a second signal period and which outputs the switched voltage.

Claim 15 (New): A method for detecting magnetic field comprising the steps of:

(a) outputting a signal according to an applied magnetic field strength through a magnetic field element;

(b) amplifying a signal of a first signal period of a polarity from this magnetic field element for outputting a voltage signal across a pair of output terminals of an amplifier and inputting a signal of the pair of output terminals of the amplifier to both ends of a condenser; and

(c) amplifying a signal of a second signal period of the other polarity from this magnetic field element for outputting a voltage signal across a pair of output terminals of the amplifier and inputting a signal of one output terminal in the

pair to one end of the condenser, and outputting a signal across the other end of the condenser and the other output terminal of the amplifier to a second pair of output terminals, respectively.

Claim 16 (New): A method for detecting magnetic field according to Claim 15, characterized in that the magnetic field element outputs a signal in accordance with a Hall effect.

Claim 17 (New): A method for detecting magnetic field according to Claim 15, characterized by further comprising a step of:

(d) halting a power source supply to the magnetic field sensor in every constant period.
